channels 7-51 core-spectrum plan.[31/] The second area concerns the consequences of the core-spectrum plan.

A. SERVICE LOSSES FLOWING FROM UNREALISTIC ASSUMPTIONS OR PLANNING ERRORS *NOT* RELATED TO THE CORE-CHANNEL BIAS

In response to the Commission's request for comments on its channel planning methodology and planning factors, see Notice, at 35-36, we have identified five categories of cases in which the Notice's assumptions/methodology should be revisited. It was possible to calculate the effects of such changes in four of the five cases. Broadcasters wished to isolate the effects of these changes on the FCC DTV Table from changes resulting from Broadcasters' full-band approach and to create a basis for comparing the FCC DTV Table's approach with Broadcasters' approach. To this end, Broadcasters used the FCC DTV Table to fashion a Baseline Table which shares the FCC DTV Table's core-channel approach but eliminates the major discrepancies in assumptions and planning factors (discussed in Sections 1-4 below). By eliminating these discrepancies, the Baseline Table ensures a fair comparison between the approaches of the FCC DTV Table and the Modified Table.[32/] With respect to the fifth category (NTSC database errors), we have included proposed changes but have not evaluated their effects or adjusted the FCC DTV Table to account for such changes.

[31/] The core-spectrum or core-channel plan refers to the proposal in the Sixth NPRM to concentrate DTV assignments in channels 7-51 and to use channels 60-69 as seldom as possible. Channels 60-69 would be reallocated in the near term and channels 2-6 and 52-59 would be reallocated after the transition to DTV. See Sixth NPRM, at 10-13.

[32/] In developing the Modified Table, Broadcasters went on to correct a more minor discrepancy related to adjacent channel assignments. Although more minor in terms of its effect on coverage and interference, this discrepancy, once remedied, accounted for approximately 60% of the DTV channel assignment changes not directly related to the core-channel bias.

1. Channels Three and Four Within the Same Market

Dating back to 1992, the Commission recognized the interference potential that use of channels 3 and 4 within the same community posed to the public served by cable terminal devices and videocassette recorders.[33/] For this reason, the FCC DTV Table "generally avoids use of the TV channels 3 and 4 in the same market."[34/] However, in three instances, the FCC DTV Table assigns DTV channels 3 or 4 in markets in which a station is already operating on channel 3 or 4.[35/] The Notice does not explain why these assignments were made.

Broadcasters have long supported the goal of avoiding the assignment of channels 3 and 4 in the same market.[36/] Our 1995 Preliminary Table successfully avoided such assignments within 60 miles of each other, and we believe the DTV table that the Commission adopts should do the same. Cable systems, broadcasters, equipment manufacturers, and, most especially, the public should not be burdened with the interference problems that will ensue if neither channel 3 nor 4 is available for VCR and cable set-top box use. Therefore, Broadcasters corrected this problem in their Baseline Table.

[33/] See Second Further Notice, 7 FCC Rcd. at 5384 (1992); see also, Sixth NPRM, at 31.

[34/] Sixth NPRM, at 39, as revised by Erratum (September 12, 1996).

[35/] These are: DTV Channel 3, Cleveland, OH (channel 4 is an operating station in Cleveland); Channel 3, Dayton, OH (channel 4 is an operating station in Columbus), and Channel 4, Binghamton, NY (channel 4 is an operating station in Syracuse).

[36/] See Broadcasters Allotment/Assignment Approach, Appendix A, at 6; Joint Comments IV, at 29.

2. Planning Factors for VHF Channels

The Commission proposes "to use the performance characteristics of the ATSC DTV system in developing DTV allotments" and requests comment on this proposal. Notice, at 34-35. To the extent that the FCC DTV Table *does* rely on the ACATS planning factors, we support that practice. However, there is one area in which the Notice deviates from these planning factors without justification. Whereas the ACATS DTV system used 10 dB for both VHF and UHF receiver noise figures,[37] the Notice, without explanation, uses 5 dB for VHF channels and 10 dB for UHF channels.[38]

Broadcasters' analysis shows that the receiver noise figure for VHF channels proposed in the Notice tends to underestimate the amount of "new" interference caused to existing NTSC stations operating in the VHF band.[39] Therefore, Broadcasters corrected this noise factor in their Baseline Table and substituted the 10 dB figure for VHF channels.

3. Impact of Canadian and Mexican Stations

From early on in this proceeding, Broadcasters have emphasized the importance of coordinating U.S. DTV assignments with present and future Mexican and Canadian allotments.[40] There are 12 instances in which the FCC DTV Table assigns

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[37] See Advisory Committee Final Report and Recommendation, November 28, 1995, Annex E, at 62.

[38] See Sixth NPRM, at A-1 (noting that "[p]ossible changes in the VHF figures are still under consideration.")

[39] "New" interference is interference caused by a proposed DTV channel to an NTSC station.

[40] See Joint Comments II, at 32 and Broadcasters Allotment/Assignment Approach, at 33-34.

DTV channels too close to adjacent or co-channels across the Mexican border.[41/] The Baseline Table corrected these channel assignments. There may be additional concerns with Canadian border stations that have not yet been identified. To ensure that DTV assignments protect, and are protected from, Mexican and Canadian allotments, we propose that the FCC establish a coordination region (*e.g.*, within 250 km of the borders) within which consultation with the respective national authorities would be required before any channel assignment or change were made. As a general rule, we propose that no U.S. DTV channel be assigned within 155 km of co-channel Mexican stations.

[41/] DTV Ch. 14, Nogales, AZ -- Assignment too close to a co-channel Mexican allotment in Magdalena, Mexico
DTV Ch. 47, Green Valley, AZ -- Assignment too close to a co-channel Mexican allotment in Sonoita, Mexico
DTV Ch. 26, Tucson, AZ -- Assignment too close to a co-channel Mexican allotment in Cananea, Mexico
DTV Ch. 48, Tucson, AZ -- Assignment too close to a co-channel Mexican allotment in Naco, Mexico
DTV Ch. 41, Tucson, AZ -- Assignment too close to a co-channel Mexican allotment in Sonoita, Mexico
DTV Ch. 19, Yuma, AZ -- Assignment not co-located or too close to an adjacent channel allotment (ch. 20) in Mexicali, Mexico
DTV Ch. 14, El Centro, CA -- Assignment too close to a co-channel Mexican allotment in Mexicali, Mexico
DTV Ch. 45, Rancho Palos Verdes, CA -- Assignment too close to a co-channel Mexican allotment in Tijuana, Mexico
DTV Ch. 23, San Diego, CA -- Assignment too close to a co-channel Mexican allotment in Ensenada, Mexico
DTV Ch. 29, San Diego, CA -- Assignment too close to a co-channel Mexican allotment in Ensenada, Mexico
DTV Ch. 17, San Diego, CA -- Assignment too close to a co-channel Mexican allotment in Ensenada, Mexico
DTV Ch. 46, San Diego, CA -- Assignment not co-located or too close to an adjacent channel allotment in Tijuana, Mexico

The Notice acknowledges violations with the U.S.-Mexican agreement at 38, n.93.

4. Adjacent Channels

All agree that adjacent channels (DTV to NTSC) should not, wherever possible, be assigned within the same or neighboring markets because of the potentially severe interference such assignments create within those markets. However, as both Broadcasters and the Commission have discovered, there are simply not enough potential DTV channels to avoid assigning DTV to NTSC adjacent channels in the most congested markets. In such cases, the Broadcasters' approach is to assign adjacent channels to the same licensee so as to (1) provide exact collocation of adjacent channel facilities; (2) thereby reduce interference; and (3) achieve comparable service areas between paired NTSC and DTV assignments.[42/] Thus, under the Broadcasters' approach, eligible DTV channels in a given market should be assigned to the licensee of the existing adjacent-channel NTSC station. The assignment of adjacent channels to the same licensee was the only goal that ranked higher than replication of NTSC service areas in Broadcasters' assignment methodology.[43/]

The Notice did not adopt Broadcasters' adjacent channel approach. Instead, out of the 367 adjacent channel assignments in the FCC DTV Table, 23 such assignments were not collocated and were not assigned to the same licensee.[44/] Broadcasters corrected for this departure from Broadcasters' adjacent channel principle

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[42/] The Sixth NPRM recognizes the value of collocation at 20, as have the recent ACATS tests (discussed below).

[43/] See Broadcasters Allotment/Assignment Approach, at A-3.

[44/] Discussions with the FCC staff have revealed that its approach to adjacent channel assignments may have been based on what we believe to be unrealistic engineering criteria. For example, the FCC staff underestimated the extent to which the power levels between adjacent channels will differ. Given the magnitude of this difference, it is particularly important to assign adjacent channels to the same licensee so that the licensee can control the amount of interference it causes to itself.

in creating the Baseline Table.[45] We found that the technical criteria and priorities that the FCC used in assigning adjacent channels in the same and neighboring markets will produce significant interference to NTSC service within the adjacent channel markets. Tests recently conducted at the ATTC in Alexandria, VA confirm that adjacent channel interference can be as severe a problem as Broadcasters have long asserted. These tests also show that collocating adjacent channels and assigning them to the same licensee is the only way to adequately control this interference. In addition to this collocation, the Commission must adopt a tight emission mask to reduce out of band emissions.[46]

The following reflects a comparison of the FCC DTV Table and the Baseline Table which made the corrections described above:

- New interference to NTSC service areas would decrease by 31% under the Baseline Table (see Section B1 below for an explanation of the methodology).
- New interference to NTSC service would be reduced from 499,780 sq. km under the FCC DTV Table to 381,811 sq. km under the Baseline Table.
- Approximately 8 million people would continue to receive acceptable NTSC service under the Baseline Table.[47]

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[45] This correction resulted in 124 changes to the FCC DTV Table and assigned 51 channels in channels 60-69, 161 in channels 52-59, and 28 in channels 2-6. In addition to the 23 cases of adjacent channels that were not collocated or assigned to the same licensee, the FCC DTV Table contained 42 cases in which DTV and NTSC adjacent channels were assigned within 1 km of each other, but also were not assigned to the same licensee. Broadcasters corrected these assignments in coming up with the Modified Table.

[46] See "An Evaluation of the FCC Proposed RF Mask for the Protection of Adjacent Channel NTSC Signals," Advanced Television Technology Center (October 22, 1996).

[47] This is the aggregate number of potential viewers per channel, as are the population figures that follow.

- Appendix B graphically illustrates the effects in three communities (Cincinnati, Boston, and Hartford) of the Baseline Table's reduction of new interference to NTSC service.

- DTV interference would decrease by 47% under the Baseline Table.

- DTV interference would be reduced from 685,349 sq. km under the FCC DTV Table to 467,224 sq. km under the Baseline Table.

- Approximately 12 million fewer people would experience DTV interference under the Baseline Table during the transition.

- 91% of stations would achieve 95% or better replication under the Baseline Table.

5. NTSC Database Corrections

The FCC DTV Table is based on the FCC TV Engineering Data Base dated May 13, 1996. See Notice, at B-1. As a preliminary matter, we urge the Commission to update that database to include the changes that result from applications for station modifications granted prior to the adoption of the Notice. It makes little sense to grant such applications unconditionally, as the Commission has done, and not work the changes they create into the DTV table. A far greater number of changes to the NTSC database will need to be made to correct inaccuracies. Because the parameters of an NTSC station determine the most appropriate paired DTV channel assignment, Broadcasters undertook to verify the accuracy of the FCC TV Engineering Data Base. Efforts were made to distribute the relevant portions of the FCC TV Engineering Data Base to all stations so that these stations could verify the information and request corrections, where appropriate.[48/] This effort produced responses from more than 250 stations identifying more than 150 errors or discrepancies in the FCC TV

[48/] Portions of the database were distributed to each of the 10 Regional Coordinators nationwide (see Appendix A). The Regional Coordinators then distributed the database at the Regional meetings.

Engineering Data Base (see Appendix C). Once verified, these corrections may invalidate a number of the FCC DTV plan assignments and require changes in the FCC DTV Table, given the ripple effect of many individual changes. Broadcasters will work with the Commission to verify the corrections so that they can be incorporated as soon as possible into the final DTV channel plan.

B. SERVICE LOSSES FLOWING FROM THE CORE-CHANNEL BIAS

In addition to the modifications set forth above, we propose a more fundamental alteration to the FCC DTV Table. The Notice proposes a core-channel approach designed to concentrate DTV assignments between channels 7 and 51 and to make as few DTV assignments as possible between channels 60 and 69 so that this spectrum can be auctioned in the near future. See Notice, at 14-16.[49/] This core-channel approach imposes a constraint on the allotment/assignment process that unnecessarily damages the public's present NTSC service and handicaps its future DTV service, while yielding little or no benefit in return. In a letter to Chairman Hundt, the Congressional leadership "strongly discourage[d] the Commission from adopting any spectrum reallocation plan, including the reallocation of spectrum assigned to the upper UHF band, which would impede . . . the transition to digital television for TV channels

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[49/] The FCC DTV Table proposes to assign 1392 of the 1578 DTV channels in the continental U.S. on channels 7-51 (88%). It proposes to assign 186 DTV channels outside of the core band.

2 through 69".[50/] As discussed below, the core-spectrum approach *will* impede the transition to DTV.

1. Core-Channel Approach Creates Unacceptable Full Power and Low Power Television Service Losses

The Notice acknowledges that a full-band DTV channel assignment approach "could theoretically provide for some degree of improved service area replication and interference performance . . .[and] have less impact on low power TV and TV translator stations." Notice, at 14. In determining how significant the improvement is, it is important to settle on the proper method for comparing interference and coverage data -- the method used in the ACATS process to evaluate competing DTV transmission systems. Using this method, the systems' interference characteristics are compared to each other relative to how each measures up against an ideal overall plan that achieved 100% replication of the NTSC service and created no new interference to the NTSC service.[51/] Thus, if plan X creates 2% new interference, and plan Y creates 1% new interference, the difference between the plans is 100%, not 1%.

[50/] Letter from Representatives Gingrich, Bliley, and Dingell and Senators Lott and Hollings to Chairman Hundt (June 19, 1996). See also *Ex parte* submission of MSTV arguing that biasing the DTV table away from the use of channels 60-69 would reduce necessary flexibility, increase interference to exiting NTSC service by 52%, reduce DTV coverage by 1.2%, and greatly increase the number of displaced LPTV and translator stations (July 3, 1996, filed in MM Docket No. 87-268); Letter from the Broadcasters Caucus to Chairman Hundt urging the FCC not to adopt the core-channel approach (July 18, 1996).

[51/] The Sixth NPRM appears to use a different baseline. It notes small coverage differences between its core-band proposal and full-band plans. What it does not address is the amount of new interference that the core-band approach creates as a percentage of the amount of new interference a full-band approach creates.

Comparison of Full-Band and Core-Channel Approaches

Using the baseline of no new interference, Broadcasters compared the interference and coverage characteristics of the FCC DTV Table's core-band approach to the full-band approach employed in the Broadcasters' Modified Table. Although the Modified Table and a description of its methodology are discussed in Part IV below and attached at Appendix E, it is important to note two technicalities here. First, to isolate the Commission's proposed spectrum bias as a variable, we compared the Modified Table to the Baseline Table that corrected the discrepancies identified in the previous section.[52/] This enabled an apples-to-apples comparison in which the only difference between the Modified Table and the Baseline Table (corrected FCC DTV Table) was the spectrum bias. Second, the Modified Table was designed to effect as few changes to the FCC DTV Table as possible. Thus, in all instances in which the FCC DTV Table assigned one of several equally appropriate channels, the Modified Table assigned the same channel. This resulted in fewer channels being assigned outside the core-band than would have been the case had the Modified Table been constructed from scratch.

The following results reflect a comparison of the full-band and core-channel approaches. It is important to note that a comparison of the Modified Table with the original FCC DTV Table, rather than the corrected table represented by the Baseline Table, would have produced even starker results. There would have been greater differences in interference and coverage. The following documents the

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[52/] The Baseline Table corrected the channel 3 and 4, VHF noise planning factor, border channel, and the most severe adjacent channel problems. Because the Modified Table incorporates several additional planning factor changes (discussed in Part IV), Broadcasters made certain to adjust the Baseline Table to reflect the same changes when comparing it to the Modified Table. Although this adjustment to the Baseline Table produced negligible differences, they were important to ensure consistency.

improvements that could be achieved by adopting the Modified Table rather than the FCC DTV Table, even as corrected in the Baseline Table:

- New interference to NTSC service areas would decrease by 18% under the Modified Table as compared to the Baseline Table.[53/]
- New interference to NTSC service would be reduced from 381,811 sq.km under the Baseline Table to 324,003 sq. km under the Modified Table.
- Most of this reduced interference would occur in the more congested markets. As a result, an additional 2.4 million people would continue to receive acceptable NTSC service under the Modified Table as compared to the Baseline Table.[54/]
- Appendix B graphically illustrates the effects in three communities (Cincinnati, Boston, and Hartford) of the Modified Table's reduction of new interference to NTSC service.
- DTV interference would decrease by 28% under the Modified Table as compared to the Baseline Table.
- DTV interference would be reduced from 467,324 sq. km under the Baseline Table to 370,600 sq. km under the Modified Table.
- Approximately 7 million fewer people would experience DTV interference under the Modified Table as compared to the Baseline Table.
- 95% of stations would achieve 95% replication or better under the Modified Table's approach as compared to 91% of stations achieving 95% replication or better under the Baseline Table's approach.

[53/] In assessing the magnitude of this difference, it is important to remember that the ACATS transmission system Bake-Off was decided on the basis of a far smaller difference. In those tests, it was determined that the QAM transmission system would create 252,000 sq. km more interference than would the 8-VSB system, using the FCC propagation curves. This difference was considered to be significant enough to justify selection of the 8-VSB system. Using the same methodology as in the Bake-Off, the interference created by the Baseline Table is 598,700 sq. km more than the interference created by the Modified Table.

[54/] This is the aggregate number of potential viewers per channel.

- The number of displaced translators and LPTVs would decrease from 3,098 under the Baseline Table (assuming all are displaced from channels 60-69) to 1,774 under the Modified Table's approach.[55/]

Significance of Estimated Service Losses

The Notice, while acknowledging the service gains attending a full-band approach, intimates that the service losses created by the core-band approach would not be significant.[56/] Such a conclusion ignores the realities of DTV, whereby service is either perfect or non-existent. It also controverts the Commission's and courts' decisions holding that even small service losses or degradation may be important enough to outweigh countervailing benefits.

The Commission and the courts have long held that loss of service is *prima facie* not in the public interest.[57/] The removal of service from an area has been held to have "grave consequences"[58/] that may require "extraordinary justification."[59/] Specifically, the loss of free broadcast television service to even a relatively small number of viewers has been definitive in Commission station relocation, deintermixture, and maximum spacing decisions.

[55/] There are a total of 8,458 translators and LPTV stations in the FCC database. 1366 are located between channels 60 and 69. Under the Modified Table's approach, only 160 in this band would be displaced.

[56/] See, e.g., Sixth NPRM, at 15 (suggesting that increased interference would occur at the edge of the Grade B service area where viewers would experience degradation in picture quality rather than a loss of service).

[57/] See, e.g., Hall v. FCC, 237 F.2d 567, 572 (D.C. Cir. 1956); New Jersey Public Broadcasting Authority, 74 F.C.C.2d 602, 605 (1979).

[58/] KTVO, Inc., 57 Rad. Reg. 2d (P & F) 648, 650 (1984).

[59/] Sarkes Tarzian, Inc., 6 F.C.C.R. 2465, 2465 (1991).

Applications to **relocate broadcast transmitters** or redirect signals involving service losses have been denied even when they would have provided public benefits. In addition, mere signal degradation has been found to be inconsistent with the public interest.[60] The impact of loss of service has weighed heavily in Commission decisions to deny applications to relocate television transmitters or alter the shape of the coverage contour.[61] In each of the following cases, the Commission denied applications to relocate a transmitter even though far more viewers would have gained service than would have lost service.

	Losses[62]	Gains
Central Coast Television[63]	4,899	297,129
W. Mich. Telecasters, Inc.[64]	89,182	385,116
WLCY-TV[65]	1,762	415,813
Carolina Christian[66]	15,769	1,726 sq. mi.

In the following cases, the Commission initially rejected applications to relocate stations largely because of the estimated loss of service, although some of the

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[60] See, e.g., WLCY-TV, 16 F.C.C. 2d 506 (1969).

[61] In addition, losses of service have affected the application of the duopoly rule, 47 C.F.R. 73.3555(b). In H & C Communications, Inc., 9 FCC Rcd. 144 (1993), Commissioner Barrett concurred with the waiver of the duopoly rule because otherwise 37,000 people would have lost a Grade B signal and 20,000 people would have lost a CBS affiliate.

[62] Losses and gains are in number of people, unless otherwise noted.

[63] 14 F.C.C.2d 985 (1968).

[64] 460 F.2d 883 (D.C. Cir. 1972).

[65] 16 F.C.C.2d 506 (1969).

[66] 48 Rad. Reg. 2d (P & F) 355 (1980).

cases were reconsidered to determine how translators or other services would prevent such losses.

	Losses	Gains
Elba Development Corp.[67]	9,936	465,286
Cosmos Broadcasting Corp.[68]	63,600	569,700
KTVO, Inc.[69]	5,022	194,455

Protecting viewers from loss of free television service was the central impetus for the **All-Channel Receiver Act.**[70] Congress was concerned that the Commission's deintermixture policy of requiring stations to switch from VHF to UHF channels would result in unacceptable loss of service. It adopted the All-Channel Receiver Act so that the Commission would suspend its deintermixture policy.[71] The Senate Committee report on the legislation also specifically called for the Commission to give weight to any loss of service in the deintermixture cases not affected by the suspension of the policy.[72]

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[67] 96 F.C.C.2d 376 (1983). Losses are white areas and gains are net gains.

[68] 5 F.C.C.2d 690 (1966).

[69] 57 Rad. Reg. 2d (P & F) 648 (1984). Loss represents a white area and gains are net gains.

[70] Pub. L. No. 87-529, 76 Stat. 150 (codified at 47 U.S.C. §§ 303(s), 330(a)).

[71] See, e.g., S. Rep. No. 1526, 87th Cong., 2d Sess. (1962), reprinted in 1962 U.S.C.C.A.N. 1873, 1877; 108 Cong. Rec. 7,438 (statement of Rep. Celler) (referring to Commission's assurance that it would not proceed on eight pending deintermixture cases if the legislation were enacted).

[72] S. Rep. No. 1526, 87th Cong., 2d Sess. (1962), reprinted in 1962 U.S.C.C.A.N. 1873, 1877.

The **minimum spacing requirements**[73] reflect the Commission's desire to ensure that stations do not relocate and create interference to existing service. Even where no actual interference would be created, a station must apply for a waiver of the rules in order to relocate its transmitter. "Theoretical" interference can be enough to prevent a station from relocating.[74] That these rules prohibit relocation of stations without regard to the actual effect on other signals demonstrates the degree to which the Commission has sought to prevent loss of service.

That almost two-thirds of the public subscribe to cable for their television service in no way reduces the severity of the lost broadcast service.[75] Cable penetration is neither geographically uniform nor demographically diverse.

First, the 62% cable penetration figure does not reflect the fact that cable subscription varies widely across the country. It achieves a high of 89% in Palm Beach, California, to a low of 38% in Fairbanks, Alaska. At least 18 markets have cable subscriptions of 55% or less.[76] Further, cable subscriptions are 58% or less in six of the largest television markets in the U.S.[77]

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[73] 47 C.F.R. § 73.610.

[74] See Orange Park Fla. Television, Inc. v. FCC, 811 F.2d 664, 666 n.4 (D.C. Cir. 1987) (upholding denial of waiver of spacing rules where broadcaster argued that the relocation would create no more interference than would occur at a full-spaced site).

[75] This figure does not convey the fact that more than 50% of all television sets are not connected to cable.

[76] Such markets include Salt Lake City (55%), Houston (55%), Boise (54%), Dallas-Ft. Worth (51%), Minneapolis-St. Paul (50%), St. Louis (51%) and Bangor (49%). See *TV & Cable Factbook*, No. 64 (1996 ed.).

[77] These are Chicago, Dallas-Ft. Worth, Houston, Minneapolis-St. Paul, Phoenix, and St. Louis. See id.

Second, and most importantly, the Commission must consider the one-third of U.S. television viewing households that do not subscribe to cable -- these are viewers who depend exclusively on free over-the-air service. Recent data show that the elderly and lower income individuals subscribe to cable at significantly lower rates than those with higher incomes. Less than 50% of television households with incomes below $20,000 subscribe to cable, for example. By contrast, for television viewing households with incomes over $50,000, the number approaches 74%.[78/]

Indeed, the Commission itself recently recognized this disparity in cable penetration and the importance, therefore, of free over-the-air service to the public. In its August Report and Order revising policies on children's television programming, the Commission commented that the "significance of over-the-air television for children is reinforced by the fact that fewer children have access to cable television than to over-the-air television."[79/] According to the Commission's figures, 38% of children ages 12-17 and 37% of children ages 2-11 do not have access to cable programming.[80/] Given these figures, the Commission concluded that "over-the-air broadcasting is an important source of video programs for children and for all members of low income

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[78/] See *Multimedia Audiences* (1994), *reprinted in* U.S. Bureau of the Census, *Statistical Abstract of the United States: 1995*, at 571 (115th ed. 1995). Only 56.3% of TV viewers over the age of 65 subscribe to cable. Of the television viewing segment of college graduates, 66.6% subscribe to cable; by contrast only 48.3% of TV viewers with no high school diploma subscribe to cable. Id.

[79/] Report and Order, MM Docket No. 93-48 (August 8, 1996), at 6.

[80/] Id. (*citing* Nielsen Universe Estimates for January 1, 1996, Nielsen Media Research, 1996).

families." [81] Cable simply cannot be relied upon to lessen the loss of broadcast service the core-band approach would inflict.

Translators and Low Power Television Stations

Translators and LPTVs are vital components of the broadcast service. Yet, there is simply not enough available spectrum either to preserve all existing translators[82] and LPTV stations[83] or to accommodate all such stations with newly assigned channels. The questions are how many stations must be displaced and how many can be accommodated on replacement channels throughout the transition period? The Notice estimates that its core-channel plan would eliminate 35-45% of LPTVs and 10-20% of translator stations. An additional 17% of all LPTV and translator stations would be affected by the early recovery of channels 60-69. See Notice, at 28. According to Broadcasters' analysis, these figures would be much greater. Our estimates predict that a total of 1,732 translators and LPTV stations (approximately 20%) would be displaced under the Baseline Table or corrected FCC DTV Table. If channels 60-69 are auctioned during the transition period as proposed in the Notice, another 1,366 translators and LPTV stations (approximately 16%) would be displaced.

The Notice seeks "comment on any and all means of lessening the impact on low power TV and TV translator stations." Notice, at 30. The Modified Table

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[81] Id. at 7. The Commission quotes statistics that only 36% of households with incomes less than $5,000 subscribe to cable. Id. (*citing* Bureau of Labor Statistics, Consumer Expenditure Surveys, Table 2, Income Before Taxes, Interview Survey 1994, 36).

[82] There are approximately 6800 translators which are used to provide service to otherwise unserved communities located in areas of mountainous terrain and to fill-in service in the shadowed areas within a given full service station service area.

[83] An estimated 1700 LPTV stations are registered with the FCC to provide original programming to niche audiences. There are closer to 500 LPTV stations actually on-air.

lessens that impact.[84/] Broadcasters worked with the low power television community and with translator station licensees in constructing the Modified Table. If adopted, it would displace 63% fewer translator and LPTV stations than would the FCC approach. A list of the displaced translator and LPTV stations is attached at Appendix E. In addition, more spectrum would be available in the interstices of the DTV and NTSC channel assignments to accommodate translator and LPTV stations, especially in the more rural areas. Adoption of the Modified Table would make some of the more impracticable trial balloons floated in the Notice unnecessary (*e.g.*, the proposal to set aside frequencies between channels 52 and 59 for displaced LPTV stations, which frequencies are indispensable for full power stations).

2. Core-Channel Approach Reduces Necessary Flexibility

As serious as the core-channel approach's reduction of service is its reduction of the maneuvering room that will be so critical in rolling out DTV. At regional meetings held throughout the country, broadcasters' most frequently expressed concern was that no one knows exactly how DTV will function in the field or to what extent predictions made now will bear out under the stress of more than 3,200 operating stations. By proposing to alienate 15% of the broadcast spectrum and under-use an additional 19%, the core-channel plan significantly constrains the options broadcasters will have to engineer their stations to provide better service. There are four components to this unnecessary constraint: the premature selection of the final DTV spectrum; the premature notice of eviction from NTSC channels outside the core; the

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[84/] Other proposals are discussed below in Part V.

undue restriction on station and channel modifications; and the reduced opportunity for maximization.

Prejudging the Optimality of Different Bands

Just four years ago, the Commission released a DTV allotment plan based on the notion that the UHF band was optimal for DTV transmissions.[85/] Now, the Notice justifies the core-channel approach in part with the assertion that the spectrum in channels 7-52, not the UHF band as a whole, is the most hospitable spectrum for DTV.[86/] This shift in thinking reflected in the Notice suggests that it is unwise to hitch the future of the nation's broadcast television service to a particular portion of the broadcast band until we learn more about DTV propagation from actual sustained DTV station operations in various environments.[87/] As Broadcasters have asserted from the beginning of this proceeding, the first priority of the transition to DTV should be to replicate and preserve the public's NTSC service while maximizing DTV service. Even if there were compelling evidence that a certain portion of the spectrum were far inferior for DTV service, there would still be compelling reason to use the entire band during the transition to satisfy this first priority. A plan that would compromise service during the transition in the absence of any such compelling evidence is unwise. In addition to its effect on service, such a plan could result in the premature selection of inferior post-transition spectrum.

[85/] See Second Further Notice, 7 FCC Rcd. at 5379.

[86/] See Sixth NPRM, at 10, 16.

[87/] In fact, as NBC reports in its separately filed comments, field tests indicate that both UHF and VHF bands are suitable for DTV operations.

Preventing Stations from Returning to their NTSC Channel

The Fourth NPRM requested comment on whether broadcasters should have the flexibility to vacate either the NTSC channel or transition-period DTV channel after the transition.[88/] There was little opposition to Broadcasters' position that such flexibility was desirable.[89/] Subsequently, the Telecommunications Act of 1996 codified this flexibility by requiring the return of one of *either* of the two channels.[90/] By deciding now to decommission channels 2-6 and 52-69 from broadcast use, the Commission would withhold this flexibility from one-third of all existing stations.[91/]

A decision now to exclude channels 2-6 from the ultimate DTV spectrum band is particularly problematic. 285 NTSC stations currently operate on these channels. Licensees have purchased stations at prices that reflect channel identities and service to communities nurtured over the past fifty years. They have invested in and built upon the longest tradition of broadcast service to the American public. Many of these stations will be loath to give up the lower VHF channels at the end of the transition, particularly when doing so will result in disruption and costs that could interfere with their tradition of service. In the absence of evidence that the lower VHF channels are unsuitable for DTV transmissions, it is unwise and could be extremely disruptive to inform stations operating on the low VHF channels -- long among the most

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88/ See Fourth NPRM, at 23.

89/ See Joint Comments VI, at 29. But see Comments of the HDTV Grand Alliance, MM Docket 87-268 (November 15, 1995), at 12.

90/ See 47 U.S.C. § 336(c).

91/ There are 286 existing NTSC licensees in channels 2-6 and 232 in channels 52-69.

desirable for their longer range propagation and lower power requirements -- that they will have to abandon their facilities at the end of the transition.

Of course, the realities of repacking are such that some stations will not have the option of transferring their DTV operations to the NTSC channels after the transition. Although the goals of this proceeding may necessitate some degree of disruption at the end of the transition, every effort should be made by the Commission to minimize such disruption and to fashion appropriate remedies for the stations that suffer unavoidable disruption. For example, to minimize the disruption to stations that have neither NTSC nor DTV channels within the band that is ultimately selected for DTV operations after the transition, we recommend that such stations be given priority in selecting channels for operation in the all-DTV world.

Whatever the disruption that stations will experience at the end of the transition (hopefully minimized by the foregoing proposal) even without a core-spectrum approach, a far different and more severe injury is caused by identifying the class of stations now that will not be accommodated in the core band later. By marking the licensees that will have to relocate now, before the transition has even begun, the Commission would create a divisive and contentious environment of haves and have-nots.

- Licensees with both NTSC and DTV channels in the core spectrum would be graced with the assurance that they can operate on a single DTV channel throughout the transition and choose either NTSC or DTV channel after the transition. See Notice, at 16.

- On the other hand, licensees with DTV channels outside of the core band[92/] would have to build their facilities knowing that they must move their DTV operations to a channel within the core band "when one became available." Notice, at 11. This could be at any time during the transition.[93/]

- Licensees with DTV channels inside the core band, but NTSC channels outside the core band would lose the possibility of moving their DTV operations to the NTSC channel at the end of the transition.

- Licensees with both DTV and NTSC channels outside of the core band would have to expect to transfer to a third channel after the transition. These stations could suffer the distinct competitive disadvantage of losing all the benefits of channel-related marketplace identity at the end of the transition. Moreover, they would not be assured of DTV channel assignments that replicated their initial DTV channels or were comparable to the channels in use by other stations in their markets.

By using a full-band instead of a core-channel approach, the Commission would keep open the possibility that one-third of all licensees could move back to the NTSC channel at the end of the transition. Moreover, the use of a full-band approach would prevent the sort of dissension that is likely if the Commission creates a caste system of fortunate core channel insiders and less fortunate core channel exiles at this early and most sensitive part of the transition.

Restricting the Ability of Stations to Make Necessary Modifications

As discussed below, in Part V, there will be a considerable amount of flux during the transition period that will require DTV channel changes. These changes will

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92/ By the count of the Sixth NPRM, this number is 186. See Sixth NPRM, at 39. However, once corrections are made to the FCC DTV Table to account for the differences in assumptions and planning factors, this number increases to 240.

93/ The Sixth NPRM requests comment on a proposal to allow broadcasters with a DTV channel outside and an NTSC channel inside the core to "convert its NTSC channel to DTV operation, rather than activate its 'temporary' out-of-core DTV allotment." Sixth NPRM, at 16. This proposal as well as similar ones not premised on the simulcast model throughout the transition are unrealistic. Broadcasters cannot cease NTSC operations until substantially all viewers have transitioned to DTV sets without destroying their revenue flow and drastically curtailing the public's service.

stem from at least three sources. First, the NTSC database must be revised with as many as 150 or so changes, and NTSC station modification requests must be processed on a rolling basis. These changes in the NTSC station characteristics may well necessitate corresponding changes in any adopted DTV table. Second, some stations may find that replication should not be the highest goal in their market because, for example, the population center has shifted. Alternative DTV channels may have to be assigned as such stations reorient themselves. Third, some stations may find that they simply cannot build their DTV facilities according to the assumptions on which their DTV channel assignments were based. The reasons for this are myriad, including the possibilities (often out of the licensees' control) that the predicted site cannot accommodate the tower height or the power required for replication or the power level cannot be achieved at any site.

The list of station requests for information on potential channel changes attached to the Modified Table at Exhibit E reflects a small fraction of how many such channel changes may be necessary. To evaluate alternative DTV channel assignments, licensees were given a list of potential alternative DTV channels (for a description of this process, see Appendix A). Because this list of alternative DTV channels was relatively long (except for in the most congested markets), licensees had the flexibility to explore alternative channels that at least came close to meeting their goals and maximizing service. Had Broadcasters limited the alternative DTV channels to those that the core-channel approach makes available, many licensees would not have had that flexibility. Such a lack will only become more damaging as the transition progresses and changes become more urgent.

Reducing the Opportunity for Maximization

As noted above, Broadcasters' modified full-band approach will give about 50% of all stations the opportunity to increase their service areas beyond their NTSC service areas. In many cases, the increased DTV coverage area will be significant as stations expand with increased power and height out to the largest service area in their market. By squeezing stations into a smaller spectrum band, the core-channel plan will reduce these opportunities. The core-band plan would perpetuate the disadvantage under which UHF stations have operated, and would constrain stations from covering their markets more efficiently and from bringing the benefits of digital television to a greater number of viewers.

3. The Benefits of Core-Channel Approach are Speculative and Uncertain

One of the primary purposes of the proposed core-channel approach is to recover 60 MHz of spectrum in channels 60-69 for an early auction and to accomplish an early (although partial) repacking of the broadcast spectrum. See Notice, at 13. In examining the economics of the core-channel approach, it should not be overlooked that the Broadcasters Modified Table and our proposal for ultimate channel relocation results in the return of essentially the same amount of spectrum to the Commission as would the proposed core-channel approach. Under both approaches, the same amount of spectrum can and will be reallocated to other uses. However, the assumed economic benefits of the Notice's proposal have been greatly overrated.

First, as discussed above, it is against the best technical, fiscal and policy practices to determine now what spectrum will be auctioned for non-broadcast uses at the end of the transition. In several years, we will know much more about where DTV

should operate, who the possible new entrants are and what spectrum is best suited for their uses. Identifying the repacked spectrum now would be costly and disruptive as would the proposed partial evacuation of channels 60-69.

Second, the proposed early auction of segments of channels 60-69 would earn far less than a later auction of contiguous spectrum. Prior Commission statements appeared to recognize this.[94/] The Notice contemplates reallocating channels 60-69 for non-broadcast uses while protecting the 97 existing NTSC licensees and 51 DTV assignments[95/] the FCC DTV Table proposes.[96/] How much usable spectrum would be available for reallocation under this scheme? And how much usable spectrum would be available for reallocation if the Modified Table were adopted? As shown in the maps attached at Appendix D, the answer to both these questions is "about the same, very small, amount." It turns out that the buffer zones needed to protect the 97 incumbent NTSC licensees and the 51 DTV licensees overlap substantially with the zones needed to protect the 139 DTV licensees the Modified Table would create. This is because the Modified Table makes additional DTV assignments in 60-69 in the more congested markets where there would be little available spectrum in 60-69 even if the FCC DTV Table were adopted.

What spectrum the FCC DTV Table would make available in channels 60-69 is likely to be worth very little. It tends to be in less populated areas, for example in

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[94/] See, e.g., Fourth NPRM, at 4 (setting forth as one of four goals of the DTV proceeding to manage "the spectrum to permit the recovery of contiguous blocks of spectrum, so as to promote spectrum efficiency and to allow the public the full benefit of its spectrum").

[95/] This is the number of DTV assignments in channels 60-69 according to the Baseline Table which does not alter the core-channel bias.

[96/] See Sixth NPRM, at 13.